

10.

Claims:

1. Spacer at connecting devices which are adapted to connect discharge devices (2) to packages (3) with liquid products (4), preferably foodstuff products, for discharging said products (4) from the packages (3),

5 wherein the packages (3) have walls (8) of synthetic material,

wherein the connecting device (1) is adapted to permit products (4) to flow therethrough from the package (3) to the discharge device (2),

10 wherein the connecting device (1) comprises a tube member (23) which is provided on a first wall portion (8a) of the walls of the package (3),

wherein the connecting device (1) comprises a connecting means (26) which can be fixed to the tube member (23), and

15 wherein the spacer (19) is provided on the connecting means (26) and adapted to be located in the package (3) in order to, during emptying of said package, keep wall portions thereof at a distance from the connecting device (1) such that said wall portions do not prevent or substantially obstruct emptying of the package,

c h a r a c t e r i z e d i n

that the spacer (19) has resilient properties,

25 that the connecting means (26), for fixation thereof to the tube member (23), can be brought to cooperate therewith such that it moves with the connecting means (26) in a direction towards a support (29) on which the package (3) is placed with a second wall portion (8b) thereof,

30 that the spacer (19) by said downward pressing can be brought to engage the support (29) through the second wall portion (8b) such that said spacer (19) at continued downward pressing is compressed from a normal shape (NF) to a compressed shape (KF),

35 that the tube member (23) has a space (28) in which the spacer (19) can be received when it is compressed and in which it is accommodated in compressed shape (KF),

11.

that the connecting means (26) can be fixed to the tube member (23) when said connecting means (26) is pressed downwards relative to the tube member (23) and said tube member (23) engages the support (29) through said
5 second wall portion (8b), and

that the spacer (19) is provided to spring back to its normal shape (NF) when the downward pressing of the connecting means (26) and the tube member (23) ceases such that said spacer (19) can take up a distance keeping
10 position.

2. Spacer according to claim 1, c h a r a c t e -
r i z e d i n that the tube member (23) has an annular application surface (30) which can be applied close or substantially close to the second wall portion (8b) when
15 the connecting means (26) and the tube member (23) are pressed in a direction towards the support (29), such that said application surface (30), in cooperation with the second wall portion (8b), prevents or at least obstructs atmospheric air from penetrating into the package (3)
20 through the tube member (23) and contaminating the product (4) in the package (3).

3. Spacer according to claim 1 or 2, c h a r a c -
t e r i z e d i n

that the spacer (19) and the second wall portion (8b)
25 cooperate with each other such that the second wall portion (8b) compress the spacer (19) when said second wall portion (8b) is pressed against said spacer (19) during deflation or contraction of the package (3) due to generation of a negative pressure therein when product (4) is
30 discharged therefrom, and

that the spacer (19) brings back the second wall portion (8b) by springing back when said suction or contraction force acting on the second wall portion (8b) ceases such that said second wall portion (8b), during discharge
35 of product (4) from the package (3), performs pump movements which affect the product (4) such that discharge thereof is facilitated.

12.

4. Spacer according to any preceding claim, c h a -
r a c t e r i z e d i n

that the spacer (19) includes annular parts (31)
which are arranged in stagger and connected with each
5 other through connecting members (32) having resilient
properties, and

that the spacer (19) is compressible and expands in
axial directions relative to the annular parts (31).

5. Spacer according to any preceding claim, c h a -
10 r a c t e r i z e d i n that the connecting means (26)
can be fixed to the tube member (23) through a snap-in
connection therewith.

6. Spacer according to any preceding claim, c h a -
r a c t e r i z e d i n
15 that the connecting device (1) includes a tubular
member (14) which can be fixed to the connecting means
(26), and

that the connecting means (26), for fixation to the
tube member (23), can be pressed downwards in a direction
20 towards the support (29) by means of the tubular member
(14) of the connecting device (1).

7. Spacer according to claim 6, c h a r a c t e r i -
z e d i n that the tubular member (14) can be fixed to
the connecting means (26) while the connecting means (26)
25 and the tube member (23) are pressed downwards in a direc-
tion towards the support (29) or by continue to press the
tubular member (14) in a direction towards the support (29)
when the tube member (23) engages said support (29) through
the second wall portion (8b).

8. Spacer according to claim 6 or 7, c h a r a c -
30 t e r i z e d i n that the tubular member (14), by
pressing thereof against a closing member (13) on the
connecting means (26) and in a direction towards the sup-
port (29), penetrates said closing member (13) and can be
35 pressed, e.g. by a snap-in action, onto the connecting
means (26) when said connecting means (26) has been fixed
to the tube member (23) and said tube member (23) is sup-

13.

ported by the support (29) through the second wall portion (8b).

9. Spacer according to claim 7 or 8, c h a r a c -
t e r i z e d i n that the tubular member (14), by
5 pressing thereof against a closing member (13) on the
connecting means (26) and in a direction towards the sup-
port (29), penetrates said closing member (13) and can be
pressed, e.g. by a snap-in action, onto the connecting
means (26) when the connecting means (26) and the tube
10 member (23) are pressed in a direction towards the sup-
port (29) but before said connecting means (26) is fixed
to said tube member (23).

10. Spacer according to any preceding claim, c h a -
r a c t e r i z e d i n
15 that the connecting means (26) has a hole (11) and
a member (13) closing said hole (11), and
that the closing member (13) can be penetrated by
means of the tubular member (14).

11. Spacer according to claim 10, c h a r a c t e -
20 r i z e d i n

that the closing member (13) is inclined relative to
a geometric axial centre line (CL) of the hole (11) such
that it defines a deep part (35) which is eccentric rela-
tive to the centre line (CL) of the hole (11),

25 that the tubular member (14) has an end edge (36)
which is inclined relative to a geometric axial centre
line (CL) of the tubular member (14) and forms a tip or
point (37) which is eccentric relative to said centre
line (CL), and

30 that the tip or point (37) is provided to be guided
into said deep part (35) when the tubular member (14) is
inserted into the hole (11).

12. Spacer according to claim 10 or 11, c h a r a c -
t e r i z e d i n

35 that the tubular member (14) can be inserted into
the hole (11) and pressed onto edge portions (16) of the
hole (11) such that the tubular member (14) adheres to

14.

said edge portions (16) and such that connecting members (9, 10) of the connecting device (1) adhere close to each other,

that the hole (11) in the first connecting member (9)
5 has four, five or six corners (15) and edge portions (16) which extend between said corners (15),

that the tubular member (14) of the second connecting member (10) has a corresponding number of corners (17) and edge portions (18) extending therebetween,

10 that the edge portions (16) of the hole (11), relative to straight geometric lines (L16) which connect adjacent corners (15) between the edge portions (16) of the hole (11) with each other, are inwardly directed and/or include parts which are inwardly directed towards the
15 centre (C1) of the hole, and

that the edge portions (18) of the tubular member (14), relative to straight geometric lines (L18) which connect adjacent corners (17) between the edge portion (18) of the tubular member (14) with each other, are inwardly
20 directed and/or include parts which are inwardly directed towards the centre (C2) of the tubular member (14).

13. Spacer according to claim 12, c h a r a c t e -
r i z e d i n that the edge portions (16 and 18 respec-
tively) of the hole (11) and the tubular member (14) respec-
25 tively, are concave and arcuate relative to the centre (C1 and C2 respectively) of said hole (11) and said tubular member (14).

14. Spacer according to claim 12 or 13, c h a r a c -
t e r i z e d i n that the edge portions (16 and 18
30 respectively) of the hole (11) and the tubular member (14) respectively, are uniform.

15. Spacer according to any of claims 12-14, c h a -
r a c t e r i z e d i n that the first connecting mem-
ber (9) is provided on the package (3) such that the edge
35 portions (16) of its hole (11) has a certain orientation relative to the package (3).

15.

16. Spacer according to any of claims 1-5, c h a -
r a c t e r i z e d i n that the connecting means (26)
includes a connecting portion (26b) for direct connection
and fixation to the tube member (23) and that the connec-
5 t i n g m e a n s (26) is a tube having a through passage (26c).

17. Spacer according to any preceding claim, c h a -
r a c t e r i z e d i n that the first and the second
connecting member (9, 10) respectively, consists of elas-
t i c m a t e r i a l o r h a s a t l e a s t a t t h e h o l e (11) and the
10 t u b u l a r m e m b e r (14) respectively, elastic material.

18. Spacer according to any preceding claim, c h a -
r a c t e r i z e d i n that the first and second con-
n e c t i n g m e m b e r (9, 10) consist of synthetic material.

19. Spacer according to any preceding claim, c h a -
15 r a c t e r i z e d i n that the package (3) consists
o f f l e x i b l e m a t e r i a l a n d i s d e s i g n e d a s a p l a s t i c b a g.